CHAPTER 11. PHASE II STUDY TASKS

The previous chapters have described the information developed during Phase I of the Comprehensive Study. Phase II of the Comprehensive Study will develop the comprehensive master plans for flood damage reduction and integrated ecosystem restoration. This chapter outlines the tasks required to develop those master plans.

Structural and non-structural measures will be evaluated during Phase II. Various disciplines will be involved in this evaluation. The extensive public involvement program will continue throughout this second phase. The major work to be performed is described in the following paragraphs.

PUBLIC INVOLVEMENT

Public involvement will be expanded (see Appendix H). Formal scoping meetings will be held at different locations in the basins to initiate the formal NEPA/CEQA process. As measures are formulated and evaluated, continued public input on the criteria to be used for evaluation will be critical. The study team will also be able to determine the extent of local acceptance for measures proposed for different reaches of the two river systems. Local workshops will be an important tool for input.

Stakeholder meetings will continue with the Technical Support Groups, the Policy Focus Groups, and the Local Support Groups. The number of meetings will expand to include other local stakeholder groups as they are identified or become more interested in the Comprehensive Study. Newsletters to update the study progress will be sent to interested parties. A mailing list will be maintained of interested parties. A Web Site will be maintained and updated and will contain information on upcoming meetings and events pertinent to the Comprehensive Study. Information about the Comprehensive Study and its progress will also be disseminated through other public media.

Phase II of the Comprehensive Study entails extensive stakeholder involvement. Implementing the Communications Strategy Plan will enable interested parties to be informed about the study, to provide input to the evaluation of measures and combinations of measures, and to participate in the development of the comprehensive master plans.

REVISE PHASE I INFORMATION

Public response will facilitate additional refinement of the preliminary information in this report. The study area as identified during Phase I may be modified during the public scoping meetings. During Phase I, considerable effort was expended to review and incorporate available information on existing conditions. Additional information that should be incorporated into the study may be revealed during Phase II. Numerous research and monitoring work is underway

through CALFED and CVPIA that may yield data that will require revisions to the current understanding of conditions in the two basins. Phase II will entail refinement and expansion of problem identification, opportunities, and measures. The initiation of Phase II of the study does not terminate those study steps begun during Phase I.

GIS DEVELOPMENT AND ANALYSIS

The GIS database under development will be a critical tool for conducting Phase II analyses. (This data base is described in Appendix C.) The majority of existing GIS information pertinent to the Comprehensive Study has been acquired. Information still necessary will be developed and incorporated into the database during Phase II. Coordination will continue with other parties interested in GIS information in the basins. Partnerships will be developed for development and sharing of information to ensure non-duplication of effort and to develop the largest, most detailed database possible with the resources available. As measure evaluation begins, the GIS database will be used to identify impacts to existing resources. This database is a key part of the ecosystem functions model and will be critical in forecasting outputs from the different proposed measures for ecosystem restoration.

GIS will be used throughout the formulation process. It will be used to display information and facilitate communication among the Comprehensive Study Team, other agencies, stakeholders, and public. It is expected to continue to be used during implementation of the master plans and possible monitoring of implemented measures.

PLAN FORMULATION AND EVALUATION

Plan formulation is the process whereby measures are conceived and developed to satisfy the study objectives. Combinations of measures are then coordinated to develop comprehensive alternative plans for the study area. All plans shall be formulated in consideration of the following four basic criteria: completeness, effectiveness, efficiency, and acceptability. Plan formulation and evaluation will follow the formulation framework outlined in Chapter 8.

In the absence of NED as the driver of the selection process, the Comprehensive Study will rely extensively on coordination with stakeholders, which include other, related programs such as CALFED and CVPIA. Measures will be arrayed to aid the comparison of outputs and criteria performance. A key objective during this task will be the identification and production of initial implementation plans for spin-off projects and for early implementation projects of the final master plans. The implementation strategy for spin-off and early implementation projects is described in more detail in Chapter 9. This task will also include preparation for and management of Corps review conferences, as required for feasibility studies. These conferences will generate several Project Guidance Memorandums for the study. Formulation and evaluation sections of the Programmatic Feasibility Report will be written along with descriptions of the final master plans.

The formulation and evaluation process will be consistent with, and follow the format suggested in, the Water Resources Council 1983 report entitled "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies". The process consists of a series of steps taken to meet the objectives for flood damage reduction and ecosystem restoration that respond to the associated identified problems and specific State and local concerns. The process ultimately develops a comprehensive program to guide flood damage reduction and interrelated ecosystem restoration in the Sacramento River and San Joaquin River basins.

Progress reports to document measure evaluation and alternative formulation will be prepared periodically. A final selection report will become part of the programmatic document. This selection report documents the basis for selecting the projects in the final master plans. Recommendations for future actions will be developed and presented in the programmatic document.

ENVIRONMENTAL STUDIES

ECOSYSTEM FUNCTIONS MODEL

An ecosystem functions model (EFM) is being developed. The model will be an essential tool for achieving flood damage reduction and integrated ecosystem restoration because it will assist the design of potential measures, indicate the expected impact (beneficial and adverse) of potential measures, and enable a retrospective evaluation of the effectiveness of implemented measures.

The EFM focuses on the lowland river ecosystem of the Central Valley of California. The EFM will combine information from hydrologic and hydraulic models and the GIS with information from other sources to characterize likely effects of measures on important ecosystem attributes. The EFM will provide quantitative comparisons of the amount, spatial distribution, and dynamic character of aquatic, wetland, and riparian habitats under existing conditions, future without project conditions, and conditions following implementation of the various measures that warrant detailed consideration.

The conceptual design for the model was completed during Phase I. During Phase II, the model will be fully developed, tested on 1 to 3 pilot reaches, further refined and calibrated, and used throughout the remainder of the study to evaluate potential effects of various measures and combinations of measures. The EFM is expected to be a valuable tool to guide possible monitoring and adaptive management during plan implementation and long-term operation and maintenance. For detailed information on the EFM concept, see Appendix D.

ENVIRONMENTAL IMPACT ASSESSMENT

The potential beneficial and adverse impacts of implementing various measures and combinations of measures for flood damage reduction and ecosystem restoration will be evaluated using methodologies that permit a system-wide, programmatic assessment. Pivotal to this assessment are the hydrologic and hydraulic models, the EFM, the flood damage assessment model, and the GIS and associated database that are being developed for the Comprehensive Study. For some measures included in the comprehensive master plans, it may also be appropriate to conduct more site specific evaluations using traditional methodologies, like vegetation surveys and USFWS Habitat Evaluation Procedures. These impacts will be included in the arrays developed for measure evaluation.

ENVIRONMENTAL BENEFITS ANALYSIS

The benefits of ecosystem restoration are contributions to national ecosystem restoration (NER). These benefits are measured in many metrics (e.g. habitat units, acres restored, increase in species populations, and dollars). While the costs of ecosystem restoration can usually be estimated in dollar values, calculation of restoration benefits is more challenging. Some indirect restoration benefits, such as improvements in water supply or recreation, may be measurable in monetary terms. However, the outputs of restored ecosystems are typically described in ecological terms, such as habitat units. The benefit analysis conducted during Phase II will include a qualitative description of the significance of environmental measures/elements (refer to Planning Guidance Notebook, ER 1105-2-100). The analysis will also quantify environmental benefits using the EFM. The evaluation of environmental benefits will consider existing and emerging State and Federal policies. Specific policies that will guide this evaluation are found in:

WRDA 86, Section 907 ER 1105-2-100, Paragraphs 7-35b, 7-36b, and 7-42
EC 1105-2-209 EC 1105-2-210
Guidance from the EPA/DWR Study "Multi-Objective Approaches to Floodplain Management on a Watershed Basis" (Chapter 3)

Methodologies for evaluating monetary and non-monetary environmental benefits exist and are under development. These methods will be investigated to determine which model can best be applied in this study. Appropriate methodologies will be used to quantify restoration benefits which will be included in the arrays developed for measure evaluation.

TRADE-OFF ANALYSIS

The master plans for flood damage reduction and ecosystem restoration will be multipurpose. Therefore, contributions to both NER and NED will be considered. A conventional benefit-cost analysis is not required for ecosystem restoration measures. However, potential measures and plans are evaluated based upon their ability to meet the study objectives

with a limited allocation of resources (effectiveness achieved efficiently). Consistent with Corps policy, environmental measures/elements will be evaluated using cost-effectiveness and incremental analysis. The optimum tradeoff plan, which maximizes the sum of the net contributions to NED and NER, will be identified. NED benefits may be traded in favor of NER outputs as long as the incremental value of the NER outputs exceeds the sum of NED benefits foregone plus incremental costs. Existing methodologies for conducting trade-off analysis (such as the Corps Bio-Economic Planning System) will be used to track the effectiveness and efficiency of different increments of restoration.

ENVIRONMENTAL COMPLIANCE

Phase II activities will activate initiation of environmental compliance activities, including those associated with NEPA. At a minimum, coordination with regulatory agencies will continue throughout Phase II. A programmatic EIS/EIR will be prepared during Phase II. Like environmental documents prepared for similar comprehensive studies, the programmatic Comprehensive Study document will evaluate the potential environmental effects of implementing a variety of measures and combinations of measures for flood damage reduction and interrelated ecosystem restoration along the Sacramento and San Joaquin Rivers. A programmatic EIS facilitates and expedites the preparation of subsequent project-specific NEPA documents through the use of tiering. Environmental Assessments and any required EIS's for spin-off and early implementation projects will also be prepared. Subsequent environmental documents need only incorporate information by reference and to summarize issues in the programmatic EIS. They must concentrate only on site-specific issues. Some measures considered in the Comprehensive Study may already be addressed in programmatic documents developed by programs from CALFED, USFWS, and the U.S. Bureau of Reclamation for CVPIA. Where appropriate, the Comprehensive Study NEPA/CEQA documents will tier off of or incorporate by reference other appropriate programmatic environmental documents.

FEDERAL AND STATE REQUIREMENTS

Phase II will be conducted in compliance with all applicable laws and regulations. Likewise, alternatives addressed in the study will include a discussion of their consistency with existing Federal and State requirements. At a minimum, the requirements listed in Table 11-1 will be addressed in the Phase II Programmatic EIS/EIR.

TABLE 11-1
LAWS AND POLICIES TO BE ADDRESSED IN THE PROGRAMMATIC EIS/EIR

Federal Requirements	State Laws, Regulations, and Policies
Clean Air Act	California Environmental Quality Act
Clean Water Act	California Endangered Species Act
Endangered Species Act	Surface Mining and Reclamation Act
Farmland Protection Policy Act	Reclamation Board Encroachment Permit
Federal Water Project Recreation Act	DWR Dam Safety Certificate of Approval
Fish and Wildlife Coordination Act	DFG Stream Alteration Agreement
National Environmental Policy Act	Required Lease or Permit from the State Lands Commission
National Historic Preservation Act	Required Approval from California Department of Transportation
Native American Graves Protection Act	Cobey-Alquist Act
Wild and Scenic Rivers Act	Guidelines for State General Plan
Executive Order 11988, Floodplain Management	Governor's Executive Order B-39-77
Executive Order 11990, Protection of Wetlands	

SOCIOECONOMIC STUDIES

These studies will determine the flood damage reduction and other benefits to be credited to the final array of measures. They will include analyses of existing and proposed land use in the floodplain, expected annual flood damages as well as benefit-cost analysis of proposed measures to reduce flood damages within the study area. The current property value in the economic impact areas will be determined as well as the actual number of structures within the floodplains. In addition, agricultural benefits must also be calculated using current land use data for crops. The most recent land use data have been obtained from the DWR and are in the GIS database for use in these evaluations.

ECONOMIC IMPACTS MODEL

Development of this model was initiated during Phase I. Economic impact areas have been delineated and are a part of the GIS database. These areas have been tied to hydrologic index points along the river system. Initial stage-damage functions have been developed for each impact area. The economic impacts analysis model will be completed during Phase II and used to screen initial measures. This model allows a quick and preliminary determination of damages due to flooding throughout the system. This model is directly linked to output from the hydrologic and hydraulic models to obtain flood elevations and then to determine damages that could be expected from those elevations. This model will assist in screening measures for effectiveness in flood damage prevention. More detailed economic analysis will be performed for the measures chosen for incorporation into the final master plans.

ECONOMIC ANALYSIS

The economic analysis during Phase II will include the following subtasks:

a. Utilize county assessor's rolls and aerial photographs to distinguish and count single family residential, multi-family residential, commercial, public, industrial, and vacant land within the study floodplains. Future land use will be determined by updated land use studies, by interviewing local officials, and based upon current growth trends.

b. Inventory and determine structure and content values for all buildings within the floodplains. This information will be integrated with hydrologic and hydraulic information to compute average annual flood damages. Updated information will include structure values (depreciated replacement cost), and business inventories for commercial, industrial, and public structures. In addition, finished floor elevation data will be obtained. The value of contents will be based on the land-use category. For commercial establishments, previous Corps surveys of similar properties will be used. For industrial properties, previous interviews conducted in the study area will be used. Residential contents will be based on past estimates developed in the study area.

c. Evaluate damage in the agricultural floodplain areas using the GIS agricultural land use data obtained from DWR.

d. Compute average annual damages, based on the updated floodplains for existing and modified conditions. Depth/Percent damage relationships will be based on FEMA curves and new information developed during the Post Flood Assessment. Historic flood damage information will also be used whenever appropriate. These findings will be segregated by land use type and by study reaches.

e. Compute flood damage reduction benefits by comparing the difference between the average annual damages for the existing condition and proposed modified conditions.

f. In addition to the ecosystem restoration benefits described earlier in this chapter and the flood damage reduction benefits above, an attempt will be made to incorporate benefits from other major floodplain functions. Calculation of these benefits is the subject of a current EPA/DWR study “Multi-Objective Approaches to Floodplain Management on a Watershed Basis”. The results of this study will be evaluated and incorporated into the Comprehensive Study benefit analysis to the extent possible.

g. Determine the economic efficiency based on the costs and total benefits of each measure and combination of measures and include in the criteria matrix for selection.

LOCAL FINANCIAL PLAN

At the conclusion of Phase II, the project sponsor will prepare a financing plan to indicate the sponsor's ability to participate in the construction cost-sharing requirements of the proposed program. The plan will include the proposed funding sources for program construction and a credit analysis. The Corps will provide assistance to the sponsor in preparing the financial plan and review and approve the plan for adequacy. This process is a required part of the financial feasibility submittal.

LAND USE STUDIES

To fully address program impacts, a current, detailed land use analysis of the study area is required. Results of the land use study are pivotal to other analyses, such as the socioeconomic, traffic, noise and air quality, wildlife habitat and for potential impacts to endangered species.

SOCIAL STUDIES

Detailed demographics for the study area will be determined. Impacts of proposed measures on these demographics will be determined and displayed. Impacts due to land conversion and removal of land from county tax rolls are of great concern to local stakeholders. These impacts will be included in the evaluation arrays for the proposed measures.

ECONOMIC REPORT

A narrative economic report will be prepared for the programmatic document. This report will display the economic findings in an objective, logical manner. All analyses performed will be described, including the methodology, documentation, and tools used.

ENGINEERING ANALYSES

Engineering efforts during Phase II will focus on completion and calibration of the hydrologic and hydraulic models, design and analysis of measures, and determining costs for measures. Many measures have been proposed to address the resource problems of the Sacramento and San Joaquin River watersheds. These measures must be technically evaluated for impacts to the flood management system and their cost-effectiveness.

SURVEYING

Additional survey data may be needed to better define floodplain topography. Flood flow elevations in the overbanks and overbank storage impacts will be crucial in the analysis of flood problems and measure evaluation. Existing information will be used as much as possible but the

data may be inaccurate in some areas of the basins where subsidence has been significant. Acquisition of new topography will be necessary, using the most efficient means possible. Design and cost estimates of some measures may also require more detailed or additional topographic information in small specific areas.

H&H STUDIES

The hydrologic and hydraulic (H&H) models, initiated during Phase I, see Appendix B, will be completed and calibrated during Phase II. The models will encompass the ability to simulate overbank flood flows based on historic and predicted levee breaks. These models will be used to better determine the existing effectiveness of the flood management system in conveying large flows, and in pinpointing the location of system inefficiencies as well as the nature of those inefficiencies. Using the H&H models, frequency curves along the main stems of the Sacramento and San Joaquin Rivers will be updated and revised. Different frequency floodplains for the existing system will be developed. Sedimentation models will be developed and analyses performed to determine reaches of aggradation and degradation. The reservoir system model will be completed in Phase II and used to determine optimum operating conditions for the reservoir system. This model will also be used to determine impacts of proposed reservoir re-operation and reallocation measures to flood flows. Although the reservoir model has the capability to model operations for water supply, the Comprehensive Study will rely on existing water supply models from DWR and USBR to determine any impacts of the proposed measures to the system water supply yield and hydropower production. Proposed measures, both ecosystem restoration and flood damage reduction, will be hydraulically designed and simulations run to determine changes to particular flood flows and other impacts on the flood management system. H&H input is critical to the EFM used to evaluate ecosystem restoration impacts. The economic impacts model and other analysis will also use H&H input to determine flood damage reduction benefits for each measure.

GEOTECHNICAL ANALYSES

The structural integrity of the levees in the flood management system will be analyzed. Probable failure point and probable non-failure point elevations will be estimated for the existing levee system. The geotechnical evaluations performed for the Sacramento River Flood Control System Evaluation will be used for evaluation of Sacramento River levees. Geotechnical explorations and evaluations are very scarce for the San Joaquin system. Soil explorations and testing may be necessary to obtain geotechnical information in questionable San Joaquin River reaches. Other soil and foundation testing may be required in areas of any proposed flood water storage measures. Where levee structural problems exist, geotechnical design will provide alternative remedies for those problems. If new levee embankments or flood water storage embankments are proposed measures for evaluation, geotechnical design will be necessary to provide embankment structural sections for quantity estimates and to provide a safe, efficient design for those embankments. Foundation design may be required for some proposed structural measures.

STRUCTURAL ANALYSES

Certain steel and concrete structures in the flood management system may require analysis to determine their present effectiveness. Some proposed measures may include steel and concrete structures which would require structural design work to determine size, shape, and quantities for cost estimating.

CIVIL ANALYSES

Proposed measures will require site design to place these measures into the existing landscape. Infrastructure impacts must be determined and design performed for any relocation of facilities (roads, railroads, canals). The civil design function will provide design maps, sections and profiles of proposed measures and determine construction quantities to be used in cost estimates. Civil design will assemble quantities from all functional elements for a proposed measure and coordinate with cost engineering the determination of a cost estimate for the proposed measure. Some measures may have designs already prepared by other entities. The civil design function will review these designs to determine if the design is complete and if quantity estimates are reasonable. This review may result in revision of the design so that it is comparable in detail to all other measure designs done for the Comprehensive Study at a particular evaluation phase. This arrangement allows a more equitable comparison of measures from the standpoint of cost.

COST ESTIMATES

Many of the proposed measures will require a cost estimate for implementation. The cost engineering function will develop these estimates. Designs and cost estimates will be developed at different degrees of detail, depending on the phase of evaluation. During early evaluations, when many measures are being screened, there will be less detail. As the number of measures are screened to the more effective measures, the detail of design and estimating will increase. Cost estimates from other entities will be reviewed to ensure that these estimates are comparable to all measure estimates. Since Phase II will generate a programmatic recommendation, no baseline estimate will be prepared, using the MCACES approach. However, cost estimates will be detailed to provide authorizing authorities with a sound range for the proposed program cost. Spin-off and early implementation projects will have baseline estimates prepared as these projects are identified.

ENGINEERING BASIS OF DESIGN

A Basis of Design will be prepared which documents the engineering analyses performed during Phase II. Presented will be design assumptions, methodologies and tools used in the design of the measures evaluated and the measures presented in the final comprehensive system program. Data used will be documented as well as its source and limitations. Tests and test

results will be described and presented. Any special design issues will be described as well as their resolution. Future design analyses required for implementation of the program will be described and their potential impacts to measure description presented. All pertinent plates, plans, profiles, and sections describing the measures will be part of the Basis of Design.

REAL ESTATE ANALYSES

REAL ESTATE STUDIES

These studies are necessary to identify the real estate requirements and costs which are entailed by measures evaluated and proposed for the comprehensive program. A real estate report (REP) will be prepared to discuss the effect of the recommended program on lands, easements, rights-of-way, relocations, and disposal areas (LERRDs). The REP will include: Project Real Estate mapping, the results of the gross appraisal of lands required for program construction, description of the minimum real estate requirements for the proposed program, discussion of the types of real estate interests to be acquired and the acreage of each, the total number of ownerships, and the types of properties within the impacted area, and the estimate of cost. The real estate team member will participate in Comprehensive Study team meetings; coordination with other offices on project data needed for Real Estate's study products; and monitoring of progress and findings associated with the study. Real estate will provide input to the Project Management Plan (PMP) which consists of the Real Estate work plan for the further work on the comprehensive program development.

RIGHTS-OF-ENTRY

This subtask includes the coordination of requests and efforts to obtain any rights-of-entry (ROE) for the required surveying, geotechnical, HTRW, and cultural resource work. ROE's must be obtained before any testing can be done on privately owned property.

PREPARATION OF RECONNAISSANCE APPRAISALS

There will be different phases of measure evaluation, each more detailed and rigorous than the previous one. Reconnaissance estimates for real estate cost will be required for these measures to assist in their evaluation. If the measure is not screened out and continues to the next phase of evaluation, the real estate estimate will be more detailed. The measures included in the final comprehensive program will be addressed in a gross appraisal.

PREPARATION OF GROSS APPRAISAL

This appraisal consists of the preparation of a detailed estimate of all real estate costs associated with acquisition of the comprehensive program’s real property requirements. The

appraisal is carried out in accordance with Engineering Regulation 405-1-12, Draft Chapter 12, Section III - Planning, Section VI - Appraisal paragraph 12-28b, and Real Estate Policy Guidance Letter Number 3, Guidance for Preparation of the Gross Appraisal. This task will also include the preparation of real estate maps to determine tract ownership and acreage in addition to preparing the final acquisition line drawings.

PRELIMINARY ATTORNEY'S OPINION OF COMPENSABILITY

This task involves an investigation and an attorney's determination if owners of project affected facilities or utilities have a vested interest and a compensable interest in terms of real estate. If so, the obligation or liability of the Federal government is to provide substitute facilities or utilities (relocations), for existing publicly owned roads and utilities, as well as existing privately owned railroads and utilities.

PROJECT MANAGEMENT

Project management activities include coordinating and monitoring the scope and progress of the Comprehensive Study to ensure the study remains focused, within budget and on schedule, and that any potential impacts on scope, schedule, and cost are fully coordinated and resolved with the local sponsor. These activities also include close coordination with The Reclamation Board, the local sponsor, to ensure that their expectations and desires have been identified and have been articulated to the Study Team. DWR staff perform work in kind as part of the cost sharing responsibilities of the local sponsor and are a part of the Study Team. Responsibility for day-to-day management of the Comprehensive Study is shared between the Corps' project manager and the local sponsor's project manager.

The project managers are responsible for assigning and negotiating study tasks with Corps and DWR functional elements, monitoring and modifying assigned work items as required, and coordinating work among functional elements. The project managers also will establish and monitor study milestones, review results and reports provided by the technical support staff, prepare technical correspondence, and make Comprehensive Study presentations. The project managers are also closely involved with implementing the public involvement strategy and coordinating with and collaborating with the many stakeholders identified for the Comprehensive Study. Project management also includes the coordination of and presentations at the Executive Committee Meetings.

This task will be accomplished by the Corps and The Reclamation Board. This subactivity includes preparation of budget documents and financial reports. At the conclusion of the study, a final audit will be performed. The cost of the final audit is cost-shared with the sponsor and is included within the funds budgeted for this subactivity. Work required to prepare and negotiate a cost-sharing agreement with the sponsor to participate in the Preconstruction Engineering & Design will be prepared under this subactivity.

The Corps and The Reclamation Board project managers are responsible for coordinating and for tracking and documenting the funds and budget (accounting) of the study; documenting appropriations; interpreting current and future budgetary guidance; and for submitting of project data sheets and justification sheets and other testimonial fact sheets as required by Congress and by the State Legislature. The project managers must also monitor and reprogram study funds; execute current year and future year funds; process schedules of monthly obligations and expenditures; monitor project financial performance; assess resource allocations versus available funds; set up and document all cost key accounts; and review pre- and post-labor reports.

The project managers will monitor expenditures, keep the Project Study Plan current, and prepare project management reports and Schedule and Cost Change Requests (SACCR) as needed. The project management structure will continue into the pre-construction engineering and design phase, and through the construction phase.

PROJECT MANAGEMENT PLAN (PMP)

This subtask consists of preparation of the PMP. The PMP describes the activities to be undertaken during the phases of study, preconstruction engineering & design, and construction. A draft PMP will be submitted to HQUSACE for review. The plans and procedures required for implementation of the program recommended for Federal participation will be defined by the PMP. The PMP will cover tasks, schedules, costs and management framework and direction for the program from completion of the Phase I Interim Report through construction. The PMP will also include a Quality Control Plan for PED activities.

TASK INTERRELATIONS

Although these actions are independently presented and described, they will be fully integrated. The study process is dynamic. Several of the tasks will be conducted concurrently, and as the process progresses, various tasks will be revised, and possibly rescoped. Moreover, specific subtasks may change or be refined as a part of adaptive study management.